What is claimed is

     1. A mark printing/verifying device, comprising a thermal head for printing a mark on a sheet, a sheet conveying motor for conveying the sheet, a sheet position detector for detecting a position of the sheet, and an image

5   reader, located downstream from said thermal head in a sheet conveying direction, for reading an image of a printed mark being the mark printed by said thermal head, and a control section for controlling them,

     said control section, comprising:

     a printing image storage means for storing image data indicating a

10   mark in unit of a dot resolution in a main scan direction being a sheet width direction and a sub-scan direction being the sheet conveying direction of said thermal head;

     a printing data storage means for storing printing position data and printing data of the mark;

15   a thermal head controller for selectively permitting heating elements of said thermal head to generate heat in accordance with the image data;

     a sheet conveying motor controller for controlling said sheet conveying motor; and

     a printing/verifying direction means for directing said thermal head

20   controller and sheet conveying motor controller to do printing in accordance with the sheet position detected by said sheet position detector, and directing said image reader to read the image of the printed mark based on the printing position data, and including

     a function of comparing the image of the printed mark read by said

25   image reader with the printing data to judge whether the printed mark is good or no good based on predetermined criteria included in the printing data, and, when the mark is no good, performing invalid printing on a sheet printed with

the mark.

2. The mark printing/verifying device according to claim 1, wherein said function of performing the invalid printing of said control section is a function of returning the sheet printed with the mark to a printing position by 5 said thermal head, and allowing said thermal head to overprint a predetermined image thereon, in the case of no good.

3. The mark printing/verifying device according to claim 1, wherein

said control section includes a function of, when performing the invalid printing, conveying the sheet to an arbitrary position, and selectively 10 permitting the heating elements of said thermal head to generate heat in accordance with the image data based on which the mark judged to be no good has been printed so as to reprint the mark thereon.

4. The mark printing/verifying device according to claim 2, wherein

said control section includes a function of, when performing the 15 invalid printing, conveying the sheet to an arbitrary position, and selectively permitting the heating elements of said thermal head to generate heat in accordance with the image data based on which the mark judged to be no good has been printed so as to reprint the mark thereon.

5. A mark printing/verifying method by the mark printing/verifying 20 device according to any one of claim 1, comprising the steps of:

dividing the mark in a sub-scan direction to constitute it of a plurality of tiers having a height of integral multiples of a dot resolution in the sub-scan direction of the thermal head;

the image reader reading an image a plurality of times at 25 predetermined intervals in the sub-scan direction for the plurality of tiers respectively;

the control section judging, every time the image reader reads the

image once, whether the read image is good or no good based on a line criterion among the predetermined criteria included in the printing data, such that when the number of judgments to be no good exceeds a predetermined number, the tier is judged to be no good, and when the tier which has been

5   judged to be no good does not satisfy a mark criterion among the predetermined criteria included in the printing data, the mark is judged to be no good.

6. A mark printing/verifying method by the mark printing/verifying device according to any one of claim 2, comprising the steps of:

10   dividing the mark in a sub-scan direction to constitute it of a plurality of tiers having a height of integral multiples of a dot resolution in the sub-scan direction of the thermal head;

the image reader reading an image a plurality of times at predetermined intervals in the sub-scan direction for the plurality of tiers

15   respectively;

the control section judging, every time the image reader reads the image once, whether the read image is good or no good based on a line criterion among the predetermined criteria included in the printing data, such that when the number of judgments to be no good exceeds a predetermined

20   number, the tier is judged to be no good, and when the tier which has been judged to be no good does not satisfy a mark criterion among the predetermined criteria included in the printing data, the mark is judged to be no good.

7. A mark printing/verifying method by the mark printing/verifying

25   device according to any one of claim 3, comprising the steps of:

dividing the mark in a sub-scan direction to constitute it of a plurality of tiers having a height of integral multiples of a dot resolution in the sub-scan

direction of the thermal head;

the image reader reading an image a plurality of times at predetermined intervals in the sub-scan direction for the plurality of tiers respectively;

5   the control section judging, every time the image reader reads the image once, whether the read image is good or no good based on a line criterion among the predetermined criteria included in the printing data, such that when the number of judgments to be no good exceeds a predetermined number, the tier is judged to be no good, and when the tier which has been

10   judged to be no good does not satisfy a mark criterion among the predetermined criteria included in the printing data, the mark is judged to be no good.

8. A mark printing/verifying method by the mark printing/verifying device according to any one of claim 4, comprising the steps of:

15   dividing the mark in a sub-scan direction to constitute it of a plurality of tiers having a height of integral multiples of a dot resolution in the sub-scan direction of the thermal head;

the image reader reading an image a plurality of times at predetermined intervals in the sub-scan direction for the plurality of tiers

20   respectively;

the control section judging, every time the image reader reads the image once, whether the read image is good or no good based on a line criterion among the predetermined criteria included in the printing data, such that when the number of judgments to be no good exceeds a predetermined

25   number, the tier is judged to be no good, and when the tier which has been judged to be no good does not satisfy a mark criterion among the predetermined criteria included in the printing data, the mark is judged to be

no good.

9. The mark printing/verifying method according to claim 5, wherein when the control section judges that the image on a first read by the image reader in a first tier of the printed mark is no good based on the predetermined criteria included in the printing data, a read position by the image reader is corrected in the sub-scan direction by a predetermined amount based on correction judgment information.

10. The mark printing/verifying method according to claim 6, wherein when the control section judges that the image on a first read by the image reader in a first tier of the printed mark is no good based on the predetermined criteria included in the printing data, a read position by the image reader is corrected in the sub-scan direction by a predetermined amount based on correction judgment information.

11. The mark printing/verifying method according to claim 7, wherein when the control section judges that the image on a first read by the image reader in a first tier of the printed mark is no good based on the predetermined criteria included in the printing data, a read position by the image reader is corrected in the sub-scan direction by a predetermined amount based on correction judgment information.

12. The mark printing/verifying method according to claim 8, wherein when the control section judges that the image on a first read by the image reader in a first tier of the printed mark is no good based on the predetermined criteria included in the printing data, a read position by the image reader is corrected in the sub-scan direction by a predetermined amount based on correction judgment information.

13. The mark printing/verifying method according to claim 5, wherein the position and a movement amount of the sheet are detected, so that every

time the sheet is moved from a reference position by a predetermined amount, the image reader reads the image on the sheet.

14. The mark printing/verifying method according to claim 6, wherein the position and a movement amount of the sheet are detected, so that every time the sheet is moved from a reference position by a predetermined amount, the image reader reads the image on the sheet.

15. The mark printing/verifying method according to claim 7, wherein the position and a movement amount of the sheet are detected, so that every time the sheet is moved from a reference position by a predetermined amount, the image reader reads the image on the sheet.

16. The mark printing/verifying method according to claim 8, wherein the position and a movement amount of the sheet are detected, so that every time the sheet is moved from a reference position by a predetermined amount, the image reader reads the image on the sheet.

17. A mark printing control method by the mark printing/verifying device according to any one of claim 1, comprising the steps of:

the control section comparing a width in the main scan direction of the image of the printed mark read by the image reader with a width in the main scan direction of the printing data; and

the thermal head controller operating to lower a heating value of the thermal head when an average of values obtained by subtracting a width dimension in the main scan direction of the printing data from a width dimension in the main scan direction of the image of the printed mark is positive, and raise the heating value of the thermal head when the average is negative.

18. A mark printing control method by the mark printing/verifying device according to any one of claim 2, comprising the steps of:

the control section comparing a width in the main scan direction of the image of the printed mark read by the image reader with a width in the main scan direction of the printing data; and

the thermal head controller operating to lower a heating value of the thermal head when an average of values obtained by subtracting a width dimension in the main scan direction of the printing data from a width dimension in the main scan direction of the image of the printed mark is positive, and raise the heating value of the thermal head when the average is negative.

19. A mark printing control method by the mark printing/verifying device according to any one of claim 3, comprising the steps of:

the control section comparing a width in the main scan direction of the image of the printed mark read by the image reader with a width in the main scan direction of the printing data; and

the thermal head controller operating to lower a heating value of the thermal head when an average of values obtained by subtracting a width dimension in the main scan direction of the printing data from a width dimension in the main scan direction of the image of the printed mark is positive, and raise the heating value of the thermal head when the average is negative.

20. A mark printing control method by the mark printing/verifying device according to any one of claim 4, comprising the steps of:

the control section comparing a width in the main scan direction of the image of the printed mark read by the image reader with a width in the main scan direction of the printing data; and

the thermal head controller operating to lower a heating value of the thermal head when an average of values obtained by subtracting a width

dimension in the main scan direction of the printing data from a width dimension in the main scan direction of the image of the printed mark is positive, and raise the heating value of the thermal head when the average is negative.

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